RUSSIAN ACADEMY OF SCIENCES
DOKLADY. MATHEMATICS

Volume 45, Number 1 July-August 1992

CONTENTS

Boĭmatov, K. Kh. *Spectral asymptotics of m-sectorial operators* 1
Gaĭshun, I. V. and Khoang Van Kuang [Hoang Van Quang] *Solvability of a class of operator equations and controllability of Roesser systems* 7
Golubyatnikov, V. P. *Questions of stability in recovering certain compact sets from their projections* 12
Dzhangibekov, G. *On a class of two-dimensional singular integral operators with several fixed singularities* 15
Zubov, V. I. *Analytic representation of motions that are Poisson stable* 21
Iskhokov, S. A. *A variational Dirichlet problem for an elliptic system of differential operators degenerate on the boundary* 26
Kurta, V. V. *On Phragmén-Lindelöf theorems for semilinear equations* 31
Merzlyakov, Yu. I. *On Kargapolov groups* 34
Runovskiĭ, K. V. *On approximation in an "angle" in L_p spaces, $0 < p < 1$* 38
Savina, T. V., Sternin, B. Yu., and Shatalov, V. E. *On the reflection law for the Helmholtz equation* 42
Karatsuba, A. A. *On the distribution of real zeros of the function $\zeta(\frac{1}{2} + it)$* 46
Korenevskiĭ, D. G. *On asymptotic stability of solutions of systems of linear deterministic and stationary stochastic difference equations with delay* 48
Kudryavtsev, L. D. *On stabilization boundary value problems* 53
Lizorkin, P. I. and Rustamov, Kh. P. *On some equivalent normings of a Nikol'skiĭ-Besov space on the sphere* 58
Miklyukov, V. M. *On a Lorentz-invariant characteristic of maximal tubes in Minkowski space* 63
Nguen Tien Kkhiem [Nguyen Tien Khiem] *Conditions for the existence of a steady-state solution of the Fokker-Planck-Kolmogorov equation in amplitude and phase variables for nonlinear oscillatory systems* 67
Platonov, S. S. *Invariant subspaces in some function spaces on symmetric spaces of rank* 1. *Symplectic and exceptional cases* 73
Tkachenko, V. A. *Spectral analysis of a nonselfadjoint Hill operator* 78
Ul'yanov, P. L. *On absolute convergence of trigonometric Fourier series* 83
Khusainov, A. A. *On the Hochschild-Mitchell dimension of the number line* ... 89
Shchan'yuĭ Chzhou [Xiang-Yu Zhou] *On orbital convexity of domains of holomorphy invariant under a linear action of tori* 93

Boĭmatov, K. Kh. *Spectral asymptotics of linear and nonlinear pencils of pseudodifferential operators that are elliptic in the Douglis-Nirenberg sense* ... 99
Bryuno [Bruno], A. D. *Smooth linearization of differential equations* 105
Gurvich, V. A. *Information extensions of game forms* 110
Zubov, V. I. *Differential equations of evolution of forms* 115
Kaplan, A. A. and Tikhachke [Tichatschke], R. *Adaptive methods of solving ill-posed semi-infinite convex optimization problems* 119
Kapustin, N. Yu. *On a property of generalized analytic functions* 124
Larin, V. B. *Construction of a nonnegative definite solution of the Lyapunov equation* 129
Makin, A. S. *On Riesz means of biorthogonal expansions in root functions of nonselfadjoint extensions of the Schrödinger operator* 132
Sabitov, K. B. *An alternating method of Schwarz type in the theory of equations of mixed type* 136
Aĭite [Ayite], A. *Meromorphic and holomorphic functions that generate normal families on an arbitrary group of conformal automorphisms of the disk* ... 141
Berkovich, L. M. *Transformations of variables as a method of finding exact invariant solutions of the Kolmogorov-Petrovskiĭ-Piskunov equation and related nonlinear heat equations* 146
Bogachev, K. Yu. *Iterative methods of solving quasilinear elliptic problems in domains of complicated shape* 152
Mikhaĭlov, L. G. *On the theory of total differentials with singular points* 157
Berkovich, L. M. *Factorization as a method of finding exact invariant solutions of the Kolmogorov-Petrovskiĭ-Piskunov equation and the related Semenov and Zel'dovich equations* 162
Gurvich, V. A. *Positional structures and chromatic graphs* 168
Gusev, M. I. *On the structure of optimal minimax estimates in problems of guaranteed estimation* 173
Islamov, G. G. *On an upper estimate of the spectral radius* 177
Krasovskiĭ, A. N. *A differential game for a positional functional of the phase coordinates and control actions* 180
Melikov, T. K. *Recurrence conditions for optimality of singular controls in systems with delay* 184
Monakhov, V. N. and Seleznëv, V. A. *Dynamical systems determining quasiconformal mappings* 189
Nikol'skiĭ, M. S. *On a linear problem of tracking motion* 193
Samoĭlenko, A. M. and Glavan, V. A. *Linear almost periodic systems admitting an almost periodic orthogonalization process* 198
Statulyavichus [Statulevičius], V. A. and Sidoravichyus [Sidoravičius], V. *Convergence to a Poisson law on CCR and CAR algebras* 202
Askhabov, S. N. and Karapetyants, N. K. *Discrete equations of convolution type with a monotone nonlinearity in complex spaces* 206
Bilalov, B. T. *A necessary and sufficient condition for the completeness and minimality of a system of the form* $\{A(t)\varphi^n(t);\ B(t)\overline{\varphi}^n(t)\}$ 211

Bloshanskiĭ, I. L. *The exact Weyl multiplier for the validity of generalized localization on any open sets for rectangularly summed three-dimensional Fourier series* 215
Bryuno [Bruno], A. D. *On conditions for nondegeneracy in Kolmogorov's theorem* 221
Rudzkis, R. *Probabilities of large excursions of empirical processes and fields* .. 226
Umarov, S. R. *On well-posedness of boundary value problems for pseudodifferential equations with analytic symbols* 229
Table of Contents for the next issue (Vol. 45, No. 2, September-October 1992, Russian original Tom 323, nos. 1–6) 233-a

Volume 45, Number 2 September-October 1992

CONTENTS

V. A. Baltag and N. I. Vulpe, *Number and multiplicity of singular points of a quadratic differential system* 235
N. S. Bakhvalov and M. È. Èglit, *On the propagation speed of perturbations in microinhomogeneous elastic media with small shear modulus* 239
V. A. Gurvich, *Algebraic properties of effectivity functions* 245
B. Yu. Sternin and V. E. Shatalov, *Fourier-Maslov integral operators associated with a bundle, and an extension of the algebra of pseudodifferential operators* 252
A. I. Subbotin, *Continuous and discontinuous solutions of boundary value problems for first-order partial differential equations* 257
V. Ya. Yakubov, *Unboundedness of normalized vector-valued functions of Dirac-type systems* 262
Sh. Yarmukhamedov, A. Abdukarimov, and Z. Malikov, *On the Cauchy problem for first-order elliptic systems* 266
I. I. Bavrin and G. N. Bakunin, *Ballisticity of continuous functions* 269
A. P. Buslaev, *On Bernstein-Nikol'skiĭ inequalities and widths of Sobolev function classes* 272
S. A. Vavilov, *Geometric methods of studying the solvability of a class of operator equations* 276
È. M. Galeev, *On Bernstein-Nikol'skiĭ inequalities that are best with respect to choice of harmonics* 281
S. Sh. Galstyan, *On convergence and unconditional convergence of Fourier series* 286
I. E. Egorova, *On a class of almost periodic solutions of the KdV equation with nowhere dense spectrum* 290

V. N. Kolokol′tsov, *The stochastic Bellman equation as a nonlinear equation in Maslov spaces. Perturbation theory* 294
A. A. Korenovskiĭ, *The reverse Hölder inequality, the Muckenhoupt condition, and equimeasurable rearrangements of functions* 301
V. E. Maĭorov, *Widths of spaces endowed with a Gaussian measure* 305
K. V. Runovskiĭ, *On approximation by algebraic polynomials in L_p-spaces, $0 < p < 1$* 310
V. I. Ryazanov, *On necessary and sufficient conditions for Belinskiĭ differentiability* 313
B. Yu. Sternin and V. E. Shatalov, *On a class of nonlocal elliptic problems* 317
M. M. Khapaev, *Singular differential equations in problems of the study of functions at a conditional extremum* 322
V. V. Aseev, *On the Möbius property of topological imbeddings preserving conformal moduli* 325
A. G. Baskakov, *On splitting a differential operator with unbounded operator coefficients* 329
Yu. Ya. Belov, *An inverse problem for the Burgers equation* 334
Yu. V. Gavrilenko, *Congruences on terms and properties of dependence relations between variables* 338
I. M. Gel′fand, M. I. Graev, and V. S. Retakh, *Generalized hypergeometric functions associated with an arbitrary finite or locally compact continuous field* 343
A. I. Gol′berg and V. A. Gurvich, *A tightness criterion for reciprocal bipartite cyclic game forms* 348
I. M. Dektyarev, *A new concept of defect for holomorphic curves* 355
M. I. Imanaliev and S. N. Alekseenko, *On the theory of nonlinear integro-partial differential equations of Whitham type* 360
F. G. Maksudov, È. M. Baĭramov, and R. U. Orudzheva, *The inverse scattering problem for an infinite Jacobi matrix with operator elements* 366
V. A. Malyshev, *Differential inequalities and Hadamard's conjecture* 371
V. V. Napalkov and I. Kh. Musin, *A description of analytic functionals in certain classes of domains* 375
S. L. Èdel′shteĭn [Edelstein], *Asymptotic splitting of boundary value problems for differential equations in Banach spaces* 379
M. Z. Berkolaĭko and I. Ya. Novikov, *Bases of wavelets in spaces of differentiable functions of anisotropic smoothness* 382
S. B. Vakarchuk, *On widths of some classes of entire transcendental functions of several complex variables* 387
A. Dzhuraev, *On degenerate systems of first-order partial differential equations* 391
A. A. Dosiev, *A block-grid method for increasing accuracy in the solution of the Laplace equation on polygons* 396
V. I. Zubov, *The evolutionary development of forms is independent of aftereffects* 400
A. S. Monin, *On jointly orthogonal expansions of multicomponent random functions* 403

A. V. Abanin, *Geometric criteria for representation of analytic functions by series of generalized exponentials* 407
N. V. Balashevich, R. Gabasov, and F. M. Kirillova, *Synthesis of adaptive optimal controls for linear dynamical systems* 412
V. A. Derkach and M. M. Malamud, *Characteristic functions of linear operators* 417
O. S. Kozlovskiĭ, *The dynamics of intersections of analytic manifolds* 425
Yu. F. Korobeĭnik and S. N. Melikhov, *A continuous linear right inverse for a representation operator, and conformal mappings* 428
M. A. Mamedov, *Turnpike theorems in continuous systems with integral functionals* 432
A. M. Nakhushev, *The effect of localization of the singularity of the gradient of the solution of Darboux's problem for the Gellerstedt equation, and a criterion for its continuity* 436
G. I. Osmanov, *On absolute convergence of the Fourier integral in* R_n 441
E. V. Radkevich, *The dynamic angle problem for the Gibbs-Thomson law* 444
V. A. Sharafutdinov, *The quasi-isotropic approximation of geometric optics and problems of tomography* 450
V. D. Budaev, *The unconditional basis property for systems of root vector-valued functions of differential operators with matrix coefficients* 454
V. V. Vedenyapin, *On the classification of steady-state solutions of Vlasov's equation on the torus, and a boundary value problem* 459
V. A. Gorelov, *On systems consisting of a finite and an infinite number of root functions of different boundary value problems* 463
A. A. Dezin and N. G. Marchuk, *Perturbation of periodicity conditions in the simplest nonlinear model* 467
V. I. Zubov, *The ergodic behavior of the distribution functions of probabilistic processes* 470
A. V. Knyazev and A. L. Skorokhodov, *Iterative methods of gradient type in a subspace for a partial symmetric generalized eigenvalue problem* 474
L. D. Kudryavtsev, *On the solutions of ordinary differential equations the integrals of whose derivatives converge conditionally* 479
O. V. Mingalev, *On solutions in the form of a traveling wave in a discrete model of the Uehling-Uhlenbeck equation* 484
S. V. Nepomnyashchikh, *The method of partitioning the domain for elliptic problems with jumps of the coefficients in thin strips* 488
O. G. Smolyanov and E. T. Shavgulidze, *The support of the symplectic Feynman measure, and the uncertainty principle* 492
V. V. Filippov, *On stationary points and some geometric properties of solutions of ordinary differential equations* 497
Table of Contents for the next issue (Vol. 45, No. 3, November-December 1992, Russian original Tom 324, nos. 1–6) 501-a

Volume 45, Number 3 November-December 1992

CONTENTS

V. V. Al'sevich, R. Gabasov, and F. M. Kirillova, *An optimal regulator for linear systems with delays under finite-dimensional terminal constraints* 503
A. G. Baskakov and Chan Khy·u Bong [Tran Huu Bong], *On almost-periodicity of solutions of linear functional equations* 509
V. V. Ditkin, *On the root subspaces of a two-parameter spectral problem* 513
P. P. Zabreĭko and Nguen Van Min' [Nguyen Van Minh], *The group of characteristic operators and its applications in the theory of linear ordinary differential equations* 517
V. N. Kolokol'tsov and V. P. Maslov, *Bellman's differential equation and Pontryagin's maximum principle for multicriteria optimization problems* 522
È. R. Korepanov, *Discrete conditionally optimal filters with memory* 528
A. A. Martynyuk, *On multistability of motion with respect to some of the variables* 533
I. V. Mingalev, *On global solvability of the Cauchy problem for discrete models of the Uehling-Uhlenbeck equation* 537
V. N. Monakhov and V. A. Seleznëv, *On certain properties of quasiconformal dynamical systems in the large* 541
I. N. Sinitsyn and V. I. Shin, *Conditionally optimal filtering of processes in stochastic differential systems with autocorrelated noise in the observations according to complex statistical criteria* 545
A. A. Borovkov, *On ergodicity of iterations of random Lipschitz transformations* 551
S. Dzhumaev and È. Mukhamadiev, *On the question of regularization of operator equations* 556
V. M. Evtukhov, *Asymptotic representations of monotonic solutions of a nonlinear nth order differential equation of Emden-Fowler type* 560
V. A. Marchenko, *Characteristic properties of Weyl solutions* 563
S. M. Nikol'skiĭ, *Approximation by entire functions of exponential type in the metric of a Banach space* 567
V. I. Burenkov and V. A. Gusakov, *On precise constants in Sobolev imbedding theorems.* II 572
N. S. Dairbekov, *The concept of a quasiregular mapping of several n-dimensional variables* 578
P. P. Zabreĭko and Nguen Van Min' [Nguyen Van Minh], *Exponential dichotomy and integral manifolds in the theory of flows, and their applications* 583
V. I. Lebedev and A. L. Skorokhodov, *Quadrature formulas of orders* 41, 47, *and* 53 *for the sphere* 587
S. S. Marchenkov, *On maximal subalgebras in products of the iterative Post algebras* $\mathfrak{P}_2$ *and* $\mathfrak{P}_3$ 593
S. M. Nikol'skiĭ, *On a method for approximating functions by polynomials on a manifold* 597
A. A. Salimov, *Almost* ψ*-holomorphic tensors and their properties* 602

A. Kh. Begmatov, *Problems of integral geometry and special operator equations of Volterra type* 606
O. A. Dolotova, *On the complexity of minimal verifying tests for Post classes* .. 610
V. V. Zhuk and G. I. Natanson, *On approximation of functions on standard simplexes* 614
M. M. Zavolzhenskiĭ and V. A. Nogin, *An approximation approach to the inversion of generalized Riesz potentials* 619
V. L. Makarov and V. V. Khlobystov, *Polynomial interpolation of operators in Hilbert spaces* 624
E. V. Radkevich, *The problem of a dynamic angle for the Verigin-Muskat problem* 629
K. S. Fayazov, *An ill-posed Cauchy problem for a differential equation with operator coefficients* 635
I. G. Tsar'kov, *Theorems on global existence of an implicit function, and their applications* 638
Chan Khy·u Bong [Tran Huu Bong], *On the Fredholm property for linear functional-differential operators* 641
V. V. Shelukhin, *The problem of predicting the temperature of the ocean from average data over a preceding period of time* 644
I. V. Zhuravlev, *On the existence of a homeomorphic solution for a multidimensional analogue of the Beltrami equation* 649
E. L. Korotyaev, *The method of Enss, taking account of anisotropy* 653
V. S. Mel'nik, *On T-differentiable functionals* 659
M. D. Ramazanov, *Universal optimality of lattice cubature formulas* 665
Kh. P. Rustamov, *On characterization of fractional powers of the Beltrami-Laplace operator on the sphere with the help of fractional finite differences* 670
K. N. Soltanov, *Solvability of nonlinear equations with operators of the form of the sum of a pseudomonotone and weakly compact operator* 676
V. P. Maslov and S. N. Samborskiĭ, *Existence and uniqueness of solutions of the steady-state Hamilton-Jacobi and Bellman equations. A new approach* ... 682
F. Kh. Mukminov, *On the rate of decay of a solution of a mixed problem for the Navier-Stokes system of equations in a domain with noncompact boundary* 688
M. A. Sadybekov and E. M. Orynbasarov, *The basis property for a system of root functions of a boundary value problem with displacement for the Lavrent'ev-Bitsadze equation* 692
A. L. Skubachevskiĭ, *Boundary value problems for differential-difference equations with incommensurable shifts* 695
V. G. Sutyrin, *The minimal surface separating equal regions in space, or the structure of an ideal dry foam* 700
M. M. Khapaev, *Singular differential equations in control problems with constraints* 706
Table of Contents for the next issue (Vol. 46, No. 1, January–February 1993, Russian original Tom 325, nos. 1–6) 709-a